

WE CLAIM:

1. An apparatus for routing packets over a network, the packets comprising a first packet type and a second packet type, wherein each packet of the first packet type has a corresponding packet of the second packet type, the apparatus comprising:

(a) a transceiver configured to receive and to forward each packet;

and

(b) a processor, coupled to the transceiver, that is arranged to perform actions, including:

if the received packet is of the first packet type, forwarding the received packet to a first traffic manager that is selected based on at least a first field in the received packet; and

if the received packet is of the second packet type, forwarding the received packet to a second traffic manager that is selected based on at least a second field in the received packet, wherein the first traffic manager is the same as the second traffic manager when the received packet of the first packet type corresponds to the received packet of the second packet type.

2. The apparatus of claim 1, wherein the first field of the first packet type includes a first value substantially equivalent to a second value in the second field of a corresponding packet of the second packet type.

3. The apparatus of claim 1, wherein the first packet type further comprises a packet in a first direction, and the second packet type further comprises a packet in a second direction.

4. The apparatus of claim 1, further comprising determining the packet type of the received packet in part by comparing a source port number with a destination port number.

5. The apparatus of claim 1, wherein the first field further comprises at least one of a source IP address and a source port number, and the second field further comprises at least one of a destination IP address and a destination port number.

6. The apparatus of claim 1, wherein forwarding the received packet based on at least the first field further comprises:

hashing the first field in the received packet to obtain a hash key; and
employing the hash key to select the first traffic manager to which the received packet is forwarded.

7. The apparatus of claim 6, wherein employing the hash key to select the first traffic manager further comprises using the hash key as an index into an allocation table of traffic managers.

8. The apparatus of claim 1, wherein the processor is arranged to perform actions, further comprising, if the received packet is other than a TCP packet or a User Datagram Protocol (UDP) packet, forwarding the received packet to a third traffic manager that is selected using the first field and the second field in the received packet.

9. The apparatus of claim 1, wherein the apparatus is arranged to operate as at least one of a distributor, a router, a bridge, a firewall, and a gateway.

10. The apparatus of claim 1, wherein the processor is arranged to perform actions, further comprising, if the received packet is associated with a pre-determined group characteristic, selecting the first traffic manager and the second traffic manager from a plurality of traffic managers that are partitioned into groups of traffic managers based in part on the pre-determined group characteristic.

11. The apparatus of claim 10, wherein the pre-determined group characteristic further comprises at least one of a Secure Socket Layer (SSL) packet, Domain Name System (DNS) packet, and a UDP packet.

12. A method of routing packets between a first network device and a second network device over a network, comprising:

receiving a packet;

if the received packet is from the first network device:

determining a target traffic manager based on at least a first field in the received packet, and

forwarding the received packet to the target traffic manager; and

if the received packet is from the second network device:

determining the target traffic manager based on at least a second field in the received packet, wherein the first field is different from the second field; and

forwarding the received packet to the target traffic manager,

wherein the received packet from the second network device is forwarded to the same target traffic manager as is the received packet from the first network device.

13. The method of claim 12, further comprising determining whether the received packet is from the first network device based on a comparison of a first packet header field and a second packet header field.

14. The method of claim 12, wherein the first field further comprises at least one of a source IP address and a source port number, and the second field further comprises at least one of a destination IP address and a destination port number.

15. The method of claim 12, wherein determining the target traffic manager further comprises:

hashing the first field to obtain a hash key; and

employing the hash key as an index into an allocation table of traffic managers.

16. A method for routing a packet over a network, comprising:

(i) receiving the packet;

(ii) if the received packet is a packet of a first type, forwarding the received packet to a first traffic manager that is selected based in part on a first field in the received packet, wherein a response packet to the received packet is forwarded to the first traffic manager; and

(iii) if the received packet is a packet of a second type, forwarding the received packet to a second traffic manager that is selected based in part on a second field in the received packet, wherein the response packet is forwarded to the second traffic manager.

17. The method of claim 16, wherein receiving the packet further comprises determining the packet type of the received packet based in part on comparing source information with destination information in the received packet.

18. The method of claim 16, wherein a packet of the first type further comprises a packet that includes a source port number that is greater than a destination port number.

19. The method of claim 16, wherein a packet of the second type further comprises a packet that includes a destination port number that is greater than a source port number.

20. The method of claim 16, wherein the first field in the received packet further comprises a source IP address and the source port number, and the second field in the received packet further comprises a destination IP address and the destination port number

21. The method of claim 16, further comprising, if the first field in the received packet equals the second field in the received packet, forwarding the received packet to a pre-determined traffic manager.

22. The method of claim 16, further comprising, if source information in the received packet is to be translated, replacing a source port number in the received packet with another source port number, wherein the other source port number is greater than a destination port number associated with the received packet.

23. The method of claim 22, wherein the other source port number is selected from a pre-computed self-source port table.

24. A system for routing a packet over a network, comprising:

- (a) a plurality of servers;
- (b) a plurality of traffic managers arranged to direct the packet to at least one of the plurality of servers; and
- (c) a distributor, coupled to the plurality of traffic managers, that is arranged to perform actions, including:
 - (i) if the received packet is a first packet type, forwarding the received packet to a first traffic manager in the plurality of traffic managers that is selected using in part a first field in the received packet, wherein a response packet to the received packet is forwarded to the first traffic manager; and
 - (ii) if the received packet is a second packet type, forwarding the received packet to a second traffic manager in the plurality of traffic managers that is selected using in part a second field in the received packet, wherein the response packet is forwarded to the second traffic manager.

25. The system of claim 24, wherein the first packet type includes a source port number in the received packet that is greater than a destination port number in the received packet, and a second packet type includes a destination port number in the received packet that is greater than a source port number in the received packet.

26. The system of claim 24, wherein using in part the first field further comprises using a source IP address and a source port number in the received packet.

27. The system of claim 25, wherein using the part the second field further comprises using a destination IP address and a destination port number in the received packet.

28. The system of claim 24, wherein in part the first field further comprises:
hashing a source IP address and a source port number in the received packet to obtain a hash key; and
employing the hash key to select the first traffic manager to which the received packet is forwarded.

29. The system of claim 28, wherein hashing the source IP address includes employing a hash function that is configured to load balance the plurality of traffic managers.

30. The system of claim 24, wherein the distributor is arranged to perform actions, further comprising, if the received packet is associated with a pre-determined group characteristic, selecting the traffic manager and the other traffic manager from a plurality of traffic managers that are partitioned into groups of traffic managers based in part on the pre-determined group characteristic.

31. An apparatus for routing a packet over a network, comprising:
(a) a transceiver that receives and forwards each packet; and
(b) coupled to the transceiver, a means for routing each received packet to a corresponding traffic manager, wherein the routing means determines the corresponding traffic manager based in part on either source information or destination information in each received packet depending upon a comparison of the source information with the destination information, wherein a response packet to each received packet is forwarded to the same corresponding traffic manager.

32. The apparatus of claim 31, wherein source information further comprises a source IP address and a source port number in the received packet, and wherein

destination information further comprises a destination IP address and a destination port number in the received packet.

33. A method for routing packets between a first device and a second device on a network, comprising:

- (a) receiving a packet;
- (b) extracting a source port and a destination port of the first device from the received packet;
- (c) determining a traffic manager corresponding to a combination of the first device and the second device, based in part on a comparison of the extracted source port and extracted destination port of the first device; and
- (d) forwarding the received packet to the determined traffic manager.